General

Guideline Title

Screening tests of unproven benefit. In: Guidelines for preventive activities in general practice, 8th edition.

Bibliographic Source(s)

Screening tests of unproven benefit. In: Guidelines for preventive activities in general practice, 8th edition. East Melbourne (Australia): Royal Australian College of General Practitioners; 2012. p. 85-6.

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

The following are not recommended as screening tests in low-risk general practice populations. These tests may have value as diagnostic tests or as tests to monitor disease progression.

Screening Tests of Unproven Benefit

Screening Tests Not Recommended in Low-risk General Practice Populations

Screening Test	Condition	Reason Not to Use	References for Further Reading
Genetic profiling	Genetic disorders	Limited evidence on the balance of benefits and harms, ethical issues and uncertain utility.	Udesky, 2010; Evaluation of Genomic Applications in Practice and Prevention (EGAPP) Working Group, 2010
Vascular			
Cardiac computerised tomography (CT)	Coronary heart disease (CHD)	No randomised controlled trial (RCT) evidence. RCTs of therapy show no effect on coronary artery progression. May be of benefit in those at intermediate risk of CHD.	Taylor et al., 2010; McEvoy et al., 2010; US Preventive Services Task Force (USPSTF), "Using," 2009
Serum homocysteine	CHD	Value as a risk factor for CHD is uncertain and published RCTs show no evidence of benefit by	USPSTF, "Using," 2009; Loland et al., 2010; Potter, Lenzo, & Eikelboom, 2009

Screening Test	Condition	Reason Not to Use	References for Further Reading
lowering levels.			
Exercise electrocardiograph (ECG)	CHD	Low yield and high false positive rate given low prevalence in asymptomatic population.	USPSTF, "Using," 2009; Lim et al., 2011
High sensitivity C-reactive protein (CRP)	Cardiovascular disease (CVD)	Some evidence of benefit (i.e., reduction in CRP linked with reduction in major CVD events in one study, but not currently recommended as a screening test for CVD).	USPSTF, "Using," 2009; Lim et al., 2011; Helfand et al., 2009; Genest et al., 2009; Buckley et al., 2009; Kones, 2009
Ankle:brachial index (ABI)	Peripheral vascular disease	Longitudinal studies showing increased risk of clinical CVD if low ABI, but there is variable reliability and low sensitivity of assessment and no published RCT evidence showing benefit of screening.	Helfand et al., 2009; Grondal et al., 2010; Ankle Brachial Index Collaboration et al., 2008
Cancer			
Magnetic resonance imaging (MRI)	Breast cancer	Ongoing surveillance strategies for women at high risk of breast cancer may include imaging with MRI. A Medicare rebate is available for MRI scans for asymptomatic women under 50 years at high risk of breast cancer.	National Breast and Ovarian Cancer Centre (NBOCC), "Early detection," 2009; NBOCC, 2010; National Breast Cancer Centre (NBCC), 2006; USPSTF, "Screening for breast cancer," 2009; Australian Department of Health and Ageing, 2012
Cancer antigen (CA)125/transvaginal ultrasound	Ovarian cancer	There is no evidence to support the use of any test – including pelvic examination, CA125, or other biomarkers, ultrasound (including transvaginal ultrasound), or combination of tests – for routine population-based screening for ovarian cancer. CA125 is limited by poor sensitivity in early-stage disease and low specificity. The specificity of transvaginal ultrasound is low. The low prevalence of ovarian cancer means that even screening tests that have very high sensitivity and specificity have a low positive predictive value for disease detection.	Schorge et al., 2010; NBOCC, "Population screening," 2009
Virtual colonoscopy/CT colonography	Colorectal cancer (CRC)	Good sensitivity for lesions larger than 10 mm, but no evidence of reduction of CRC incidence or mortality. Not currently recommended.	Zauber et al., 2009; Philip, Lubner, & Harms, 2011; Weizman & Nguyen, 2010; Pox & Schmiegel, 2010; Laghi et al., 2010; Lieberman, 2009
Whole body CT or MRI	Cancer	Whole body imaging has not been shown to improve quality of life and/or decrease mortality. It is associated with additional radiation exposure and a high number of false positive results. There are no RCTs of whole body imaging to detect cancer or CVD.	Weltermann, Hermann, & Gesenhues, 2010; Canadian Health Services Research Foundation, 2010; Ladd, 2009; Fayngersh & Passero, 2009; Schoder & Gonen, 2007; Anderiesz et al., 2004
Lung Disease			
Spirometry	Chronic obstructive pulmonary disease (COPD)	Assessment is unreliable and screening for COPD using spirometry has no net benefit.	O'Reilly & Rudolf, 2011; COPD Guidelines Committee, 2011; "Screening for chronic," 2009; O'Donnell et al., 2008

Screening Test	Condition	Reason Not to Use	References for Further Reading
Endocrine			
Thyroid function tests	Thyroid dysfunction	Despite the relatively high incidence of subclinical hypothyroidism in older women (up to 17%), there is a lack of convincing data from controlled trials that early treatment reduces lipid levels, symptoms or the risk for CVD in patients with mild thyroid dysfunction detected by screening.	Gopinath et al., 2010; Ochs et al., 2008; Empson et al., 2007; Helfand, 2004
Chronic Disease Prevention			
Vitamin D	Vitamin D deficiency	High prevalence, variability in assessment and lack of rigorous evidence of benefit of screening.	Bjelakovic et al., 2011; Chung et al., 2010; Hanley et al., 2010; Holick et al., 2011; Wang et al., 2010
Infection			
Midstream urine (MSU) culture	Asymptomatic bacteriuria (elderly)	Identifying and treating non-pregnant adults with asymptomatic bacteriuria does not improve outcomes and may increase antibiotic resistance.	Lin, Fajardo & USPSTF, 2008

Screening Tests of Indeterminate Value

Screening Test	Condition	Reason Not to Use	References
Women			
Vitamin D	Pregnancy	Moderate prevalence and associated morbidity, but no randomised controlled trial (RCT) evidence of benefit. There is debate about what is an adequate level of vitamin D. High-risk groups for vitamin D deficiency may benefit from screening and supplementation.	Ebeling, 2011; Dror & Allen, 2010; Lichtenstein, 2009; Holmes, et al., 2009
Vascular			
Ultrasound	Abdominal aneurysm	USPSTF recommend screening, but low yield as declining incidence and ethical issues of screening only one subgroup (male smokers), and cost-effectiveness not clear.	Aggarwal et al., 2011; Ferket et al., 2012; "Screening," 2005
B-type natriuretic peptide (BNP)	Congestive cardiac failure	The evidence for screening for heart failure using BNP is mixed despite its sensitivity and prognostic significance. It may be useful in excluding the condition in suspected heart failure.	Felker et al., 2009; Krum et al., 2011; National Institute for Health and Clinical Excellence, 2010; Porapakkham et al., 2010
Cancer			
Chest computerised tomography (CT)	Lung cancer	Good sensitivity but poor specificity; one RCT underway in smokers has preliminary results showing a 20% reduction in mortality in the CT arm. Low-dose CT screening may benefit individuals at an increased risk for lung cancer, but uncertainty exists about the potential harms of screening and the generalisability of results. Approximately 20% of individuals in each round of screening had positive results requiring some degree of follow-up, while approximately 1% had lung cancer.	Mulshine & van Klaveren, 2011; Baldwin, 2011; Bach et al., 2012
Positron emission tomography (PET) – CT	Lung cancer	Good sensitivity and specificity, but no RCT results.	Baldwin, 2011

Screening Test	Condition	Reason Not to Use	References
Elderly			
Visual acuity	Visual impairment	No benefits of screening, even though impaired visual acuity is common and effective treatments are available.	Smeeth & Iliffe, 2006; Chou, Dana, & Bougatsos, 2009

(or PET CT scan)

Clinical Algorithm(s)

None provided

Scope

Disease/Condition(s)

- Genetic disorders
- Coronary heart disease
- Cardiovascular disease
- Peripheral vascular disease
- Abdominal aneurysm
- Congestive cardiac failure
- Breast cancer
- Ovarian cancer
- Colorectal cancer
- Lung cancer
- Chronic obstructive pulmonary disease
- Thyroid dysfunction
- Vitamin D deficiency, including deficiency in pregnancy
- Asymptomatic bacteriuria
- Visual impairment

Guideline Category

Prevention

Screening

Clinical Specialty

Cardiology

Endocrinology

Family Practice

Geriatrics

Medical Genetics

Obstetrics and Gynecology

Oncology

Ophthalmology

Optometry

Preventive Medicine

Pulmonary Medicine

Intended Users

Advanced Practice Nurses

Health Care Providers

Nurses

Physician Assistants

Physicians

Public Health Departments

Guideline Objective(s)

- To provide a comprehensive and concise set of recommendations for patients in general practice with additional information about tailoring risk and need
- To provide the evidence base for which primary healthcare resources can be used efficiently and effectively while providing a rational basis to ensure the best use of time and resources in general practice

Target Population

Low-risk general practice populations in Australia, including pregnant women and the elderly

Interventions and Practices Considered

1. Genetic profiling for genetic disorders
2. Cardiac computed tomography (CT) for coronary heart disease (CHD)
3. Serum homocysteine measurement for CHD
4. Exercise electrocardiography (ECG) for CHD
5. High-sensitivity C-reactive protein (CRP) for cardiovascular disease (CVD)
6. Ankle:brachial index (ABI) for peripheral vascular disease
7. Magnetic resonance imaging (MRI) for breast cancer
8. Cancer antigen (CA) 125 and transvaginal ultrasound for ovarian cancer
9. Virtual colonoscopy/CT colonography for colorectal cancer
10. Whole body CT or MRI for cancer
11. Chest CT for lung cancer
12. Positron emission tomography (PET)-CT for lung cancer
13. Spirometry for chronic obstructive pulmonary disease (COPD)
14. Thyroid function tests for thyroid dysfunction
15. Screening for vitamin D deficiency
16. Midstream urine culture for asymptomatic bacteriuria in the elderly
17. Screening for visual impairment in the elderly
18. Ultrasound for abdominal aneurysm
19. B-type natriuretic peptide (BNP) for congestive cardiac failure

Note: None of the tests are recommended as screening tests in low-risk general practice populations. These tests may have value as diagnostic tests or as tests to monitor disease progression.

Major Outcomes Considered

- Sensitivity and specificity of screening tests
- Prognostic value and diagnostic yield of screening tests
- False-positive and false-negative results
- Benefits and harms of screening tests
- Quality of life
- Mortality

Methodology

Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

Sources of Recommendations

The recommendations in these guidelines are based on current, evidence-based guidelines for preventive activities. The Taskforce focused on those most relevant to Australian general practice. Usually this means that the recommendations are based on Australian guidelines such as those endorsed by the National Health and Medical Research Council (NHMRC).

In cases where these are not available or recent, other Australian sources have been used, such as guidelines from the Heart Foundation, Canadian or United States preventive guidelines, or the results of systematic reviews. References to support these recommendations are listed. However, particular references may relate to only part of the recommendation (e.g., only relating to one of the high-risk groups listed) and other references in the section may have been considered in formulating the overall recommendation.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Levels of Evidence

Level	Explanation
I	Evidence obtained from a systematic review of level II studies
II	Evidence obtained from a randomised controlled trial (RCT)

Level	Explanation
III–1	Evidence obtained from a pseudo-randomised controlled trial (i.e., alternate allocation or some other method)
III–2	Evidence obtained from a comparative study with concurrent controls: • Non-randomised, experimental trial • Cohort study • Case–control study • Interrupted time series with a control group
III–3	Evidence obtained from a comparative study without concurrent controls: • Historical control study • Two or more single arm study • Interrupted time series without a parallel control group
IV	Case series with either post-test or pre-test/post-test outcomes
Practice Point	Opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

These *Guidelines for preventive activities in general practice*, 8th edition, have been developed by a taskforce of general practitioners (GPs) and experts to ensure that the content is the most valuable and useful for GPs and their teams. The guidelines provide an easy, practical and succinct resource. The content broadly conforms to the highest evidence-based standards according to the principles underlying the Appraisal of Guidelines Research and Evaluation.

The dimensions addressed are:

- Scope and purpose
- Clarity of presentation
- Rigour of development
- Stakeholder involvement
- Applicability
- Editorial independence

The Red Book maintains developmental rigour, editorial independence, relevance and applicability to general practice.

Screening Principles

The World Health Organization (WHO) has produced guidelines for the effectiveness of screening programs. The Taskforce has kept these and

the United Kingdom National Health Services' guidelines in mind in the development of recommendations about screening and preventive care.

Rating Scheme for the Strength of the Recommendations

Grades of Recommendations

Grade	Explanation
A	Body of evidence can be trusted to guide practice
B	Body of evidence can be trusted to guide practice in most situations
C	Body of evidence provides some support for recommendation(s) but care should be taken in its application
D	Body of evidence is weak and recommendation must be applied with caution

Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

Method of Guideline Validation

Peer Review

Description of Method of Guideline Validation

Not stated

Evidence Supporting the Recommendations

References Supporting the Recommendations

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Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendations is not specifically stated.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate use of screening and diagnostic tests in the low-risk general practice population

Potential Harms

Potential harms of specific tests are provided in the "Major Recommendations" field.

Qualifying Statements

Qualifying Statements

- The information set out in this publication is current at the date of first publication and is intended for use as a guide of a general nature only and may or may not be relevant to particular patients or circumstances. Nor is this publication exhaustive of the subject matter. Persons implementing any recommendations contained in this publication must exercise their own independent skill or judgement or seek appropriate professional advice relevant to their own particular circumstances when so doing. Compliance with any recommendations cannot of itself guarantee discharge of the duty of care owed to patients and others coming into contact with the health professional and the premises from which the health professional operates.
- Whilst the text is directed to health professionals possessing appropriate qualifications and skills in ascertaining and discharging their professional (including legal) duties, it is not to be regarded as clinical advice and, in particular, is no substitute for a full examination and consideration of medical history in reaching a diagnosis and treatment based on accepted clinical practices.
- Accordingly, the Royal Australian College of General Practitioners and its employees and agents shall have no liability (including without limitation liability by reason of negligence) to any users of the information contained in this publication for any loss or damage (consequential or otherwise), cost or expense incurred or arising by reason of any person using or relying on the information contained in this publication and whether caused by reason of any error, negligent act, omission or misrepresentation in the information.
- These guidelines have not included detailed information on the management of risk factors or early disease (e.g., what medications to use in treating hypertension). Similarly, they have not made recommendations about tertiary prevention (preventing complications in those with established disease). Also, information about prevention of infectious diseases has been limited largely to immunisation and some sexually transmitted infections (STIs).

Implementation of the Guideline

Description of Implementation Strategy

For preventive care to be most effective, it needs to be planned, implemented and evaluated. Planning and engaging in preventive health is increasingly expected by patients. The Royal Australian College of General Practitioners (RACGP) thus provides the Red Book and *National guide to inform evidence-based guidelines*, and the Green Book (see the "Availability of Companion Documents" field) to assist in development of programs of implementation. The RACGP is planning to introduce a small set of voluntary clinical indicators to enable practices to monitor their preventive activities.

Implementation Tools

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Staying Healthy

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Screening tests of unproven benefit. In: Guidelines for preventive activities in general practice, 8th edition. East Melbourne (Australia): Royal Australian College of General Practitioners; 2012. p. 85-6.

Adaptation

This guideline has been partially adapted from Australian, Canadian, United Kingdom, and/or United States preventive guidelines.

Date Released

2012

Guideline Developer(s)

Royal Australian College of General Practitioners - Professional Association

Source(s) of Funding

Royal Australian College of General Practitioners

Guideline Committee

Red Book Taskforce

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Financial Disclosures/Conflicts of Interest

Not stated

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the Royal Australian College of General Practitioners (RACGP) Web site .

Availability of Companion Documents

The following is available:

> Putting prevention into practice (green book). East Melbourne (Australia): Royal Australian College of General Practitioners; 2006. 104 p. Electronic copies: Available in PDF from the Royal Australian College of General Practitioners (RACGP) Web site

Patient Resources

None available

NGC Status

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